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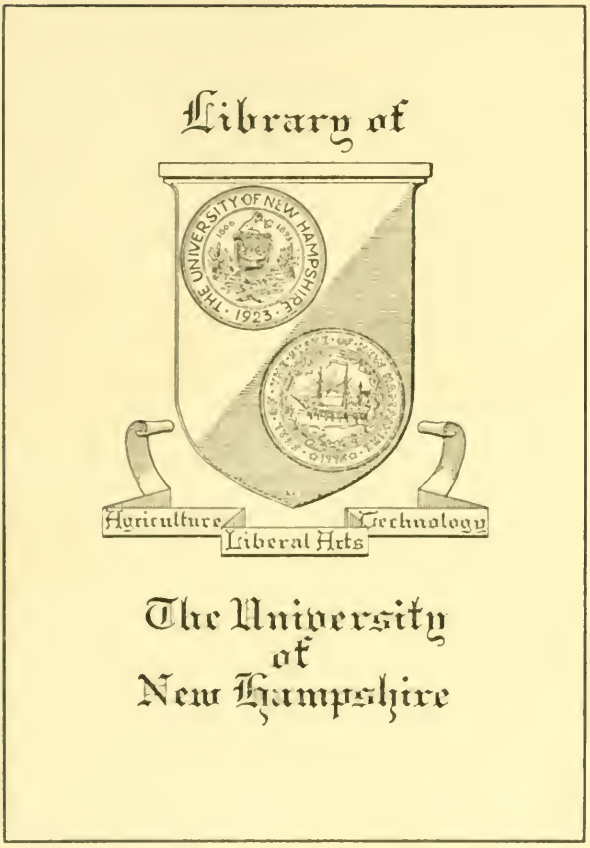

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The Agricultural Conservation Program in New Hampshire

by

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and

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U. S. Department of Agriculture

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The Agricultural Conservation Program in New Hampshire

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The Problem

THIS study was undertaken: first, to determine the extent of participation in the 1936 and 1937 Agricultural Conservation programs in New Hampshire, the reasons for incomplete participation, the changes that have been made in farm practices, and, if possible, to discover more effective ways of encouraging desirable farm practices; secondly, to determine the probable long-time effect of the practices on the economy of the individual farm and to project as far as possible the influence of the program on the agriculture of the state.

The Procedure

Twelve towns well distributed over the state and fairly representative of the agriculture of the entire state were selected. (Fig. 1) The important types of farming areas were represented.[1] It was noted in the analysis of the census data that these towns represent approximately one-tenth of the state's agriculture, containing as they do 8.9 per cent of the farms, 9.4 per cent of total farm land, 9.8 per cent of tillage acres, 9.8 per cent of cows milked, 10.0 per cent of hens, and over 12 per cent of orchard and vegetable acres.

A visit was made to each farm in the 12 towns and information obtained on acreage of each crop in 1935, 1936, and 1937; numbers of each class of livestock; practices that have been followed; extent of participation in the Agricultural Conservation Program; reactions of farmers to the program and their suggestions for its improvement. This information obtained directly from the farmers was checked with the official work sheets of the county conservation committees.

Nineteen hundred farms were included in the survey. All had sufficient acreage to come within the census definition of a farm, although 242 of them were probably not occupied at the time of year when the census was taken. (Table 1) In the survey, farm visits were made systematically by means of town maps which had been prepared in the type-of-farming project. While more farms were found than are indicated in the 1935 census, the number of cows, young stock, acres of orchard, and acres of vegetables are approximately in agreement. Num-

[1] Grinnell, H. C.; Type-of-Farming Areas in New Hampshire; New Hampshire Agricultural Experiment Station, Circular 53, 1937.

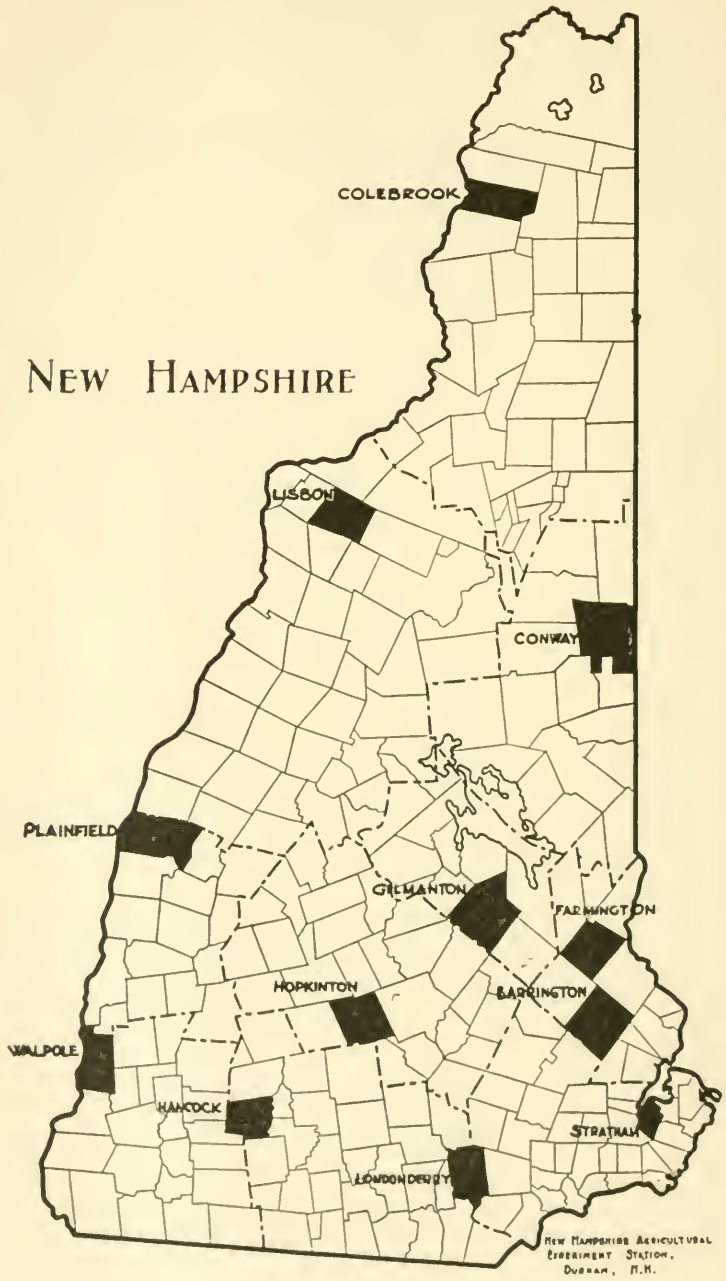

Figure 1. The twelve towns included in this study are well distributed over the farming areas of the state and roughly represent one tenth of the agriculture.

bers of hens were considerably larger in the survey data.[2] There were rather large discrepancies in individual towns between the survey data and the census but the totals for the 12 towns agree fairly well.

In order to study the data more in detail, the farms were grouped into classes based primarily on amount of farming done and the aggressiveness of the management. First the farms were divided into commercial and non-commercial groups. Farms were considered as commercial if their organization represented over 100 man work units.[3] However, the usual method of calculating man work units was changed to avoid crediting farms with productive work where large acreages of tillage land on semi-abandoned farms are cut over to secure a small amount of hay.[4]

The commercial farms were divided into two groups: active commercial and less active commercial. The criteria by which this grouping was done are difficult to describe in concrete quantitative terms. The active farms are those which are more aggressively managed than most farms in the state. They are characterized by more livestock and more activity in production. The less active commercial farms were characterized by less activity and less livestock, the operators tending

[2] The survey gives the number of hens housed in the fall of 1936. This figure is thus larger than the census figure which is for the number of hens on hand January first, 1935. Ordinarily by that time the flocks have been reduced by culling and mortality losses.

[3] A man work unit roughly represents the production that would normally require one day of man labor under fairly efficient management.

[4] Twenty man work units per cow were used in estimating the size of business instead of the usual 15. It was estimated that five units per cow would cover the labor requirement in growing roughage under efficient management.

TABLE 1. *Comparison of census and survey records of 12 towns with census data for the entire state.*

	Survey records total for 12 towns, 1937	1935 census totals for the 12 towns in survey	1935 census totals for New Hampshire	Per cent of state total
Number of farms	1,900*	1,576	17,695	8.9
Total acres	204,428	199,650	2,115,548	9.4
Number of tillage acres**	49,670	45,483	462,844	9.8
Number of cows milked	7,381	7,694	78,086	9.8
Number of young stock	4,767	4,584	45,792	10.0
Number of hens	163,200	120,295	1,203,605	10.0
Acres of orchard	2,031	2,291	17,998	12.7
Acres of vegetables	2,150	2,026	16,345	12.4

* This includes all locations of three acres or more in rural areas, which are now occupied by either year-round or summer residents or which have been occupied recently. This is not directly comparable to the census since it includes 242 locations that probably were vacant at the time of year the census was taken. Since the hay on these farms has been harvested in recent years, they were included.

** Not including orchard acres.

Table 4. *Distribution of 1900 farms according to the number of tillage acres, 1937.*

Type of farm	Tillage acres												
	0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	Over 100	Unknown	Total
	Number of farms												
Commercial:													
Active	17	28	36	46	54	29	27	23	16	24	39	....	339
Less active	52	58	79	62	38	24	10	10	9	2	4	2	350
Non-commercial:													
Subsistence	124	100	48	32	18	2	1	3	2	1	2	3	336
Residence	496	145	85	39	14	5	4	2	....	1	....	14	805
Miscellaneous	24	17	10	9	3	1	1	1	....	....	2	2	70
Total	713	348	258	188	127	61	43	39	27	28	47	21	1900
Per cent	37	18	14	10	7	3							
		69			20				7		3	1	100

to drift in production without much physical effort in developing better production.

Next the non-commercial farms were divided into three groups. The farming done in the first group was of the subsistence type. Some of the operators had partially retired on account of old age or ill health. Some farms were for sale because the owners could operate them no longer. The next group is comprised of locations which had sufficient acreage to be considered farms but were primarily residences. The occupants were not attempting to farm. They usually had a garden, many had a few hens, and a few kept a cow. Most of these locations had been farmed in the past and a few had considerable tillage.

TABLE 2. *Comparison of the average organization of commercial and non-commercial farms, 1937.*

	Commercial farms		Non-commercial farms			All farms
	Active	Less active	Subsistence	Residence	Miscellaneous	
Number of farms	339	350	336	805	70	1900
Total acres per farm	253	112	87	51	132	108
Tillage acres per farm	57.2	33.2	19.8	12.6	26.4	26.1
Orchard acres per farm	4.2	1.1	.2	.2	.....	1.1
Commercial vegetable acres per farm	3.7	1.5	.6	.2	.1	1.1
Cows per farm	13.	6.2	1.6	.3	.3	3.9
Young stock per farm	8.7	3.4	1.4	.2	.1	2.5
Hens housed per farm	275.	149.	36.	7.	.....	86.

TABLE 3. *Acreages and livestock numbers on commercial and non-commercial farms, 1937.*

	Commercial farms		Non-commercial farms			All farms
	Active	Less active	Subsistence	Residence	Miscellaneous	
Total acres	85,680	39,317	29,172	41,013	9,246	204,428
Number of tillage acres	19,403	11,610	6,664	10,142	1,851	49,670
Number of orchard acres	1,424	391	51	165	.....	2,031
Number commercial vegetable acres	1,270	509	213	150	8	2,150
Number cows	4,413	2,180	550	217	21	7,381
Number young stock	2,953	1,187	488	130	9	4,767
Number of hens housed	93,231	52,109	12,112	5,748	.....	163,200

TABLE 5. *Number and per cent of farms and activities enrolled in the 1937 Agricultural Conservation Program.*

	All farms	Commercial farms		Non-commercial farms		
		Active	Less active	Subsistence	Residence	Miscellaneous
Number of farms						
Total	1,900	339	350	336	805	70
Number enrolled in 1937	664	286	185	114	67	12
Per cent enrolled	34.9	84.4	52.9	33.9	8.3	17.1
Farm acreage						
Total	204,428	85,680	39,317	29,172	41,013	9,246
Number enrolled in 1937	120,339	77,920	23,791	11,069	5,826	1,733
Per cent enrolled	58.9	90.9	60.5	37.9	14.2	18.7
Tillage acres						
Total	49,670	19,403	11,610	6,664	10,142	1,851
Number enrolled in 1937	29,264	17,414	7,454	2,697	1,188	511
Per cent enrolled	58.9	89.7	64.2	40.5	11.7	27.6
Number of cows						
Total	7,381	4,413	2,180	550	217	21
Number enrolled in 1937	5,729	4,052	1,451	201	25	.....
Per cent enrolled	77.6	91.8	66.6	36.5	11.5	.....
Number of young stock						
Total	4,767	2,953	1,187	488	130	9
Number enrolled in 1937	3,777	2,756	797	206	18	.....
Per cent enrolled	79.2	93.3	67.1	42.2	13.8	.....
Number of hens						
Total	163,200	93,231	52,109	12,112	5,748	.....
Number enrolled in 1937	78,782	57,830	17,331	2,998	623	.....
Percent enrolled	48.3	62.0	33.3	24.8	10.8	.....
Orchard acres						
Total	2,031	1,424	391	51	165	.....
Number enrolled in 1937	1,538	1,288	210	14	26	.....
Per cent enrolled	75.7	90.4	53.7	27.5	15.8	.....
Commercial vegetables (acres)						
Total	2,150	1,270	509	213	150	8
Number enrolled in 1937	1,642	1,203	323	98	15	3
Per cent enrolled	76.4	94.7	63.5	46.0	10.0	37.5

In addition there were a few classified as miscellaneous. This group includes such locations as summer estates, hotels and boys' and girls' camps, where no special effort was made in farming but hay was sold. Several fur farms and highly specialized enterprises were included.

The average organization of the farms is shown in Table 2, the distribution of farms by acres of tillage in Table 4. It is significant that the 339 active commercial farms account for 60 per cent of the cows, 62 per cent of the young stock, 57 per cent of the hens, and 70 per cent of the orchard acreage. (Table 3) On the other hand the 805 resident farms which have about one-fifth of the tillage land account for very little production.

Enrollment and Participation

In 1936, the first year of the conservation program, 342 operators, representing 34 per cent of the land in farms, 36 per cent of tillage land, 51 per cent of the cows, 21 per cent of the hens, 31 per cent of orchard acres, and 47 per cent of vegetable acreage, were enrolled. In 1937, the second year of the program, 664 operators, representing 59 per cent of the land in farms, 59 per cent of the tillage land, 78 per cent of the cows, 48 per cent of the hens, 76 per cent of orchard land, and 76 per cent of the vegetable acreage, were enrolled. (Table 5)

It is evident that the program is not reaching all the farms and that some of the livestock, orchard, and vegetable enterprises are not represented. Yet over 84 per cent of the active commercial farms—and within that group 90 per cent of the tillage land, 92 per cent of the cows, 62 per cent of the hens, 90 per cent of orchard acres, and 95 per cent of the vegetable acres—were on the farms that were enrolled in the program. It would seem that the active commercial farmers, who were in the best position to make use of practices and to cooperate with the program, had enrolled.

This good record for enrollment decreases progressively from the active commercial farm group to the resident farms. In the latter case 8 per cent were enrolled. Only 12 per cent of their tillage land, 11 per cent of their cows, 11 per cent of their hens, 16 per cent of their orchard acres, and 10 per cent of their vegetable acreage were represented in the enrollment. (Fig. 2)

It is evident that the resident farmers and most of the subsistence farmers were not interested in the program in 1937. They had little or no manure to use on new seedings and most of them had no livestock to require more roughage. The profitableness of carrying out agricultural conservation practices under such conditions can be questioned. Since many in this group have neither horses nor tractors, there is little incentive to add lime, reseed, and add fertilizer. In addition many of this group have other work and other opportunities and are not dependent upon the land for their living.

In summary it may be stated that about 84 per cent of the men actively engaged in farming, 53 per cent of the men farming less actively, 34 per cent of the subsistence farmers, and 8 per cent of the resident farmers were enrolled in the program. To what extent it is socially profitable to have a larger enrollment will be considered later.

TABLE 6. *Number and percentage of farms by towns included in the sign-up for the conservation program in 1937.*

Town	No. farms		Commercial farms							Non-commercial farms								
			Active		Less active		Total			Subsistence		Residence		Miscellaneous		Total		
	1935 Census	Survey	Survey	Signed up	Survey	Signed up	Survey	Signed up	Per cent signed, 1937	Survey	Signed up	Survey	Signed up	Survey	Signed up	Survey	Signed up	Per cent signed, 1937
Barrington	129	158	9	6	13	6	22	12	54.5	47	16	81	2	8	0	136	18	13.2
Colebrook	144	134	42	38	52	39	94	77	81.9	14	9	22	4	4	0	40	13	32.5
Conway	177	148	29	26	15	9	44	35	79.5	40	22	57	10	7	2	104	34	32.7
Farmington	123	136	15	11	16	9	31	20	64.5	28	7	73	2	4	0	105	9	8.6
Gilmanton	108	141	19	18	10	8	29	26	89.7	32	6	72	6	8	6	112	18	16.1
Hancock	53	99	28	21	9	3	37	24	64.9	9	3	51	8	2	0	62	11	17.7
Hopkinton	130	210	32	24	38	12	70	36	51.4	46	8	89	3	5	1	140	12	8.6
Lisbon	128	143	37	31	32	13	69	44	63.8	28	2	35	1	11	0	74	3	4.1
Londonderry	202	281	34	27	73	26	107	53	49.5	23	5	143	7	8	2	174	14	8.0
Plainfield	165	185	44	39	13	10	57	49	86.0	43	21	80	14	5	1	128	36	28.1
Stratham	85	109	23	23	26	17	49	40	81.6	17	9	43	4	0	0	60	13	21.7
Walpole	132	156	27	22	53	33	80	55	68.8	9	6	59	6	8	0	76	12	15.8
Total	1576	1900	339	286	350	185	689	471	.....	336	114	805	67	70	12	1211	193	.....
Per cent signed up			84.4		52.9				68.4	33.9		8.3		17.1				15.9

Enrollment varied greatly in the different towns. In Stratham all the active farms were enrolled, while in Londonderry only 79 per cent were signed up. (Table 6)

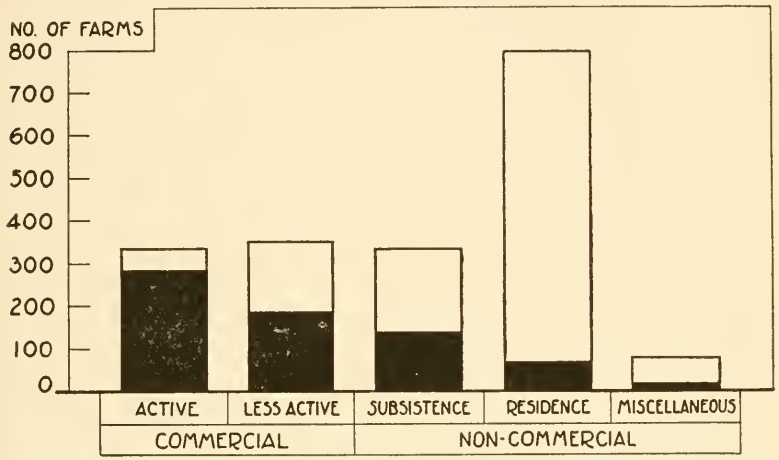

Figure 2. Enrollment in the conservation program of each type of farm group is indicated by the shaded area.

Qualifying for Payments

Of those enrolling in the program 86.9 per cent completed definite conservation practices and qualified for payment for all or part of their allowance. When the enrolled farms are grouped according to types, 91.3 per cent, 79.7 per cent, 61.2 per cent, and 28 per cent of the active, less active, subsistence, and residence farms, respectively, qualified for payment. This suggests that the non-commercial farmers who enrolled in the program found it difficult to participate.[5]

Participation and Changes in Practices

The results of the soil conservation program are difficult to measure. Comparisons with 1935 are subject to error but this seemed the most logical approach. Wherever 1935 did not represent a normal situation on an individual farm the operator was requested to indicate an estimate that would represent the usual situation before the program went into effect.

When all farms were considered, regardless of participation in the program, there was some increase in 1936 and a substantial increase in

[5] **Reasons Given for Not Enrolling:** The operators on farms with less than 20 acres were usually handicapped in taking advantage of the program because so many of them did not have the facilities and were not dependent upon agriculture. But on the 432 farms with 20 acres or more of tillage land which were not enrolled, 12 did not desire a subsidy, and 10 were out and out hostile to the program. (Table 7) Most of the operators in this group stated they were not able to use the program because of the small amount of actual agricultural production on their farms.

Some farmers enrolled who apparently were not able to purchase materials to carry out practices, but those not signing up did not indicate lack of funds as a reason for not entering the program.

1937 in tons of lime used, in acres of new seeding, in acres of pasture improved, in new seedings in pastures, in fertilizer used on new seedings, and on hay land. (Tables 8 to 12) [6]

It should be noted here that the 1936 program got under way late in the season and probably all operators did not have an opportunity to understand it fully, or time to reorganize the season's cropping plans. By the spring of 1937 most operators were familiar with the program and in a better position to cooperate.

Practically all change in practices was accounted for on the farms which were enrolled in the program.

The 339 active commercial farms increased the acreage of new seedings laid down per farm from 3.9 acres in 1935 to 4.9 acres in 1937. The farms enrolling in the program increased their acreage of new seedings by 1.2 acres while those not in the program increased only .3 acre. (Table 9)

The lime used per farm amounted to .8 ton in 1935 and 3.6 in 1937, an increase of 2.8 tons per farm. In this group an average of 1,500 pounds of lime was used per acre of new seedings. Since some fields do not need lime, it is thought that the soil acidity situation has been greatly improved in preparation for new seedings. [7]

The 286 active farms enrolled in the program increased the use of lime from one ton in 1935 to 4.2 tons per farm in 1937; while the 53 farms not enrolling increased from no lime in 1935 to one-half ton per farm in 1937.

[6] Interviews with farmers took place from July first to about September first and prior to the close of the program year. In a few cases the lime was on hand but on account of the weather had not actually been applied. If the farmer in these instances indicated an intention to use this lime before the year closed, the practice was included. The survey results are not in exact agreement with the official data but the differences are minor and can be largely accounted for by memory bias.

[7] A small amount of the lime was used on pastures and some on land to be seeded in 1938 or later.

TABLE 7. *Reasons given by 432 farmers, each with 20 acres or more of tillage, for not signing up in 1937.*

Farm used as residence only	167
Not sufficient agriculture to justify joining program	127
Poultry farms, "Could not use program"	30
Ownership problem, farm for sale, in estate, etc.	27
Other activities relatively more important	19
"Not desiring subsidy or Government aid"	12
Hostile to program	10
Recently purchased, not yet organized	12
Lack of understanding of program, language difficulties	3
Lack of money	1
Unknown	24
	432

On the less active commercial farms the use of lime per farm increased from .12 ton in 1935 to 1.24 tons in 1937 and new seedings from 1.08 acres in 1935 to 1.56 acres in 1937. Changes in other practices were less significant. While these changes may seem small, the use of lime and more reseeding may serve to maintain the yielding capacity of many individual farms in this group. This is indicated by the increase of practices on the 185 farms enrolled in the program (Table 10). The average use of lime on the less active farms enrolled increased from .16 ton in 1935 to 2.3 tons per farm in 1937, and the new seedings increased from 1.6 in 1935 to 2.4 per farm in 1937. Practically all the increase is accounted for on the 185 farms enrolled in the program.

As would be expected, the non-commercial farms were not affected greatly by the program. However, on the 114 subsistence farms enrolled in the program the use of lime per farm was increased from .1 ton in 1935 to 1.6 tons per farm in 1937 and new seedings from .7 acre in 1935 to 1.5 acres per farm in 1937. Roughly one-third of the subsistence and one-half of the resident farm operators who enrolled increased their soil-conserving practices. (Tables 11 and 12) The increase is very small on these places but on account of the small amount of tillage land the change in practices may check the decline in yields of hay.

Conservation Payments

Since many farmers carry out practices in excess of their allotments, the actual cost of each practice or the cost of the changes made are not known. The official data from the county associations indicate completed practices equal to a value of $24,536.14 for the 12 towns. (Table 13) The actual payment checks will total $20,236.27, which allows for a deduction of one per cent for expense.[8]

[8] This is not the total expense of local administration.

TABLE 8. *Comparison of practices on 1900 farms in 1935 and 1937*

Practices	Total practices on 1900 farms†		Total practices on 664 farms enrolled		Change 1935 to 1937		
	1935	1937	1935	1937	1900 farms	664 farms enrolled	Per cent‡
Lime used, tons	339	1925	318	1873	+1586	+1555	97.3
New seeding hayland, acres*	1842	2515	1610	2248	+ 673	+ 638	89.4
Fert. on new seeding, tons	18	116	18	115	+ 98	+ 97	98.8
Fert. on hayland, tons	18	98	17	97	+ 80	+ 80	98.4
Pasture improvement, acres	135	785	122	776	+ 650	+ 654	98.9
Fert. on pastures tons	41	36	41	36	— 5	— 5	100.0
New seeding in pastures, acres	24	99	18	92	+ 75	+ 74	93.9
Green manure, acres	303	319	303	318	+ 16	+ 15	99.5
Mulching orchards, tons	69	74	69	74	+ 5	+ 5	100.0
Forest trees planted, M.	12	9	12	8	— 3	— 4	94.1
Woodland improvement, acres	18	94	14	87	+ 76	+ 73	92.6

* Does not include new seeding in pastures.
† Includes all farms whether or not enrolled in the program.
‡ The per cent of the total change accounted for by the 664 farms that were enrolled in the soil conservation program.

Thus this expenditure of $20,236.27 (plus other administrative expense) has induced 664 operators to use 1,555 additional tons of lime; reseed 638 additional acres of tillage land; use 172 additional tons of fertilizer on grass lands and pasture; make 74 acres of additional seedings in pasture; improve 73 acres of additional woodland; grow 15 acres more of green manure crops, and add 5 tons more of mulching to orchards.

It will be noted that only 29 per cent of the possible total allotments was used in 1937 and that only 59 per cent of the total tillage land was enrolled. An extension of the enrollment and participation to include all active commercial farms and 10 per cent more of the less active commercial farms would leave about 30 per cent of the allotment unused. In this case about 30 per cent of the tillage land or 138,000 acres on a state basis would not be in the program. This large acreage which probably cannot be brought into the program is distributed in small units on small subsistence or residence farms. Small crops of hay are now harvested on this acreage and on the whole the only farm operation undertaken, in addition to a vegetable garden, is hay harvest.

Present Management of Tillage Land

The data in this study furnish two criteria by which one may judge the effect of present management of tillage land on the trend of abandonment of land as tillage. These are ratio of livestock to tillage and per cent of land reseeded.

Ratio of Livestock to Tillage Land

Twenty-one per cent of the tillage area in the 12 towns was associated with farms without livestock and thus no manure was distributed. (Table 15) While it may be possible to maintain the fertility through

TABLE 9. *Comparison of practices on 339 active commercial farms in 1935 and 1937, and on 286 of these farms enrolled in the program.*

Practices		Total practices carried out on					
		339 farms†			286 farms enrolled		
		1935	1937	Change	1935	1937	Change
Lime used,	tons	276.8	1236.2	+959.4	276.8	1208.2	+931.4
New seeding hay land,	acres*	1311.8	1665.1	+353.3	1229.3	1567.9	+338.6
Fert. on new seeding,	tons	18.0	91.6	+ 73.6	18.0	91.1	+ 73.1
Fert. on hay land,	tons	17.0	66.7	+ 49.7	17.0	66.6	+ 49.6
Pasture improvement,	acres	109.0	696.0	+587.0	107.0	691.0	+584.0
Fert. on pastures,	tons	39.2	28.7	— 10.5	39.2	28.7	— 10.5
New seeding in pastures,	acres	15.5	58.0	+ 42.5	13.5	55.0	+ 41.5
Green manure,	acres	303.0	298.6	— 4.4	303.0	298.6	— 4.4
Mulching orchards,	tons	69.0	71.0	+ 2.0	69.0	71.0	+ 2.0
Forest trees planted,	M.	10.0	1.0	— 9.0	10.0	1.0	— 9.0
Woodland improvement,	acres	10.0	41.0	+ 31.0	10.0	41.0	+ 31.0

* Does not include new seeding in pastures.

† Includes all active commercial farms whether or not enrolled in the program.

commercial fertilizers, the lack of livestock indicates, in general, a situation where the land is receiving little attention and is declining rapidly in hay yields. Under present management it probably will be in brush within 20 years.[9] An exception to this is the orchard areas where large applications of fertilizer are regularly made.

A larger acreage of tillage land, 31 per cent, was on farms with some, but less than .2 of an animal unit per acre. It is thought that this land, too, is declining in hay yields but at a slower rate. Only about 48 per cent of the tillage land was associated with more than .2 animal unit per tillage acre. It will be noted in a study of Figure 3 that only a small per cent of the tillage land associated with little or no livestock was in the conservation program, while the land associated with considerable livestock was well represented. This suggests again the situation existing in which the conservation program is likely to build up the

[9] The problem of actual soil fertility is not involved in this statement. There is evidence that yields of hay in this state decline on land not associated with livestock and not fertilized and that after a few years the hay crop is not sufficient to induce the operators in the neighborhood to harvest it. Under New Hampshire conditions of soil and climate the brush and trees soon reclaim land which is unmowed.

In this process of going back to brush the soil actually may be increased in fertility by the accumulation of forest humus. It is stated in a Kentucky bulletin that there is evidence of a long rotation involving a few years of intensive cropping, a long period of brush and timber, the clear cutting of timber resulting in pasture, and then intensive cropping again undertaken. Although New Hampshire is an old settled country, there is so far little evidence of reclaiming land for crops when once it has been absorbed by woods. It is entirely possible that shifts in economic conditions may sometime in the distant future induce men to reclaim land for crops. After decades of accumulation of forest humus, no doubt the land would be much improved in fertility.

TABLE 10. *Comparison of practices on 350 less active commercial farms in 1935 and 1937.*

Practices		Total practices carried out on					
		350 farms†			185 farms enrolled		
		1935	1937	Change	1935	1937	Change
Lime used,	tons	42.0	434.5	+392.5	29.0	417.0	+388.0
New seeding hay land,	acres*	377.5	545.6	+168.1	287.0	445.6	+158.6
Fert. on new seeding,	tons	.2	15.9	+ 15.7	.2	15.4	+ 15.2
Fert. on hay land,	tons	.....	23.5	+ 23.5	.....	23.0	+ 23.0
Pasture improvement,	acres	9.0	66.5	+ 57.5	5.5	65.0	+ 59.5
Fert. on pastures,	tons	1.1	5.3	+ 4.2	1.1	5.3	+ 4.2
New seeding in pastures,	acres	5.0	18.0	+ 13.0	5.0	18.0	+ 13.0
Green manure,	acres	.....	18.5	+ 18.5	.....	18.5	+ 18.5
Mulching orchards,	tons	.....	3.0	+ 3.0	.....	3.0	+ 3.0
Forest trees planted,	M.	.....	3.5	+ 3.5	.....	3.0	+ 3.0
Woodland improvement,	acres	7.5	43.0	+ 35.5	4.0	38.0	+ 34.0

* Does not include new seeding in pastures.

† Includes all less active commercial farms whether or not enrolled in the program.

better lands and that poor farms without stock and drifting toward abandonment will probably not be greatly influenced by the program. This may be a desirable trend providing the farms abandoned are the poorer farms in bad locations and providing they are not useful later if a forest farming economy develops.

A large part of the tillage land not associated with livestock is on residence farms and few of these are represented in the program. (Fig. 4) If no livestock is to be kept on these locations, it normally will not pay the owner to attempt to maintain or build up the yields of roughage.

Estimating present yields at one-third ton per acre, these fields tending toward abandonment which are not represented in the program are now yielding 38,000 tons or sufficient roughage for 12,600 cows.

Per Cent of Tillage Land Reseeded

Frequent reseeding with clover and alfalfa increases the yielding capacity of the soil. There is indeed considerable experiment station literature indicating the power of frequent legume reseedings to add both organic matter and nitrogen to the soil. It should be stated here, however, that a few New England leaders discount the advantages of reseeding with clover and alfalfa and suggest instead applications of commercial nitrogen.

As indicated in Table 17, 46 per cent of the tillage land was associated with farms that made no new seedings in 1937. Another 17 per cent was on farms where some but less than 5 per cent was reseeded. Thus 63 per cent of the total tillage was associated with farms where less than one-twentieth of the tillage land was reseeded in 1937.

A great deal of the failure to reseed was on non-commercial farms where the operator had no great need for more hay and no equipment to do the work. On active commercial farms much of the failure to reseed some land was on apple and poultry farms where reseeding may

TABLE 11. *Comparison of practices on 336 subsistence farms in 1935 and 1937.*

Practices		Total practices carried out on					
		336 farms†			114 farms enrolled		
		1935	1937	Change	1935	1937	Change
Lime used,	tons	19.5	183.3	+163.8	12.0	179.3	+167.3
New seeding hay land,	acres*	123.2	229.4	+106.2	79.8	176.3	+ 96.5
Fert. on new seeding,	tons	.....	5.5	+ 5.5	.....	5.5	+ 5.5
Fert. on hay land,	tons	1.0	.6	— .4	.....	5.0	+ 5.0
Pasture improvement,	acres	17.0	18.0	+ 1.0	9.5	17.5	+ 8.0
Fert. on pastures,	tons	.7	2.3	+ 1.6	.7	2.3	+ 1.6
New seeding in pastures,	acres	3.0	21.5	+ 18.5	.....	18.5	+ 18.5
Green manure,	acres	.5	2.0	+ 1.5	.....	.....	.....
Mulching orchards,	tons	.....	.....	.....	.....	.....	.....
Forest trees planted,	M.	1.8	4.0	+ 2.2	1.8	4.0	+ 2.2
Woodland improvement,	acres	1.0	8.0	+ 7.0	.....	7.0	+ 7.0

* Does not include new seeding in pastures.

† Includes all subsistence farms whether or not enrolled in the program.

not be so important. On the 227 active commercial dairy farms only 759 acres of tillage land or 5.8 per cent were on farms where no reseeding was done in 1937. On a few farms seeding is done every other year but in a detailed examination of records this factor was unimportant.

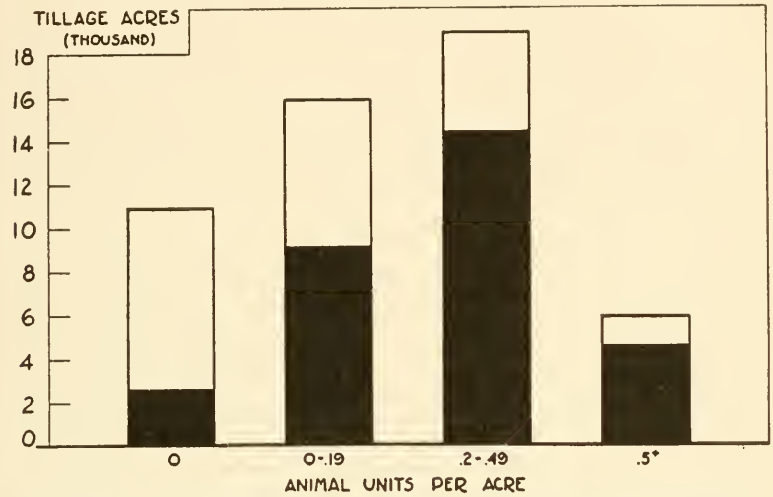

Figure 3. Tillage acres distributed according to animal units per acre. The shaded portion represents acreage enrolled in the conservation program.

The lack of aggressive management of tillage land as shown in the failure to reseed is another indication of a situation leading toward a gradual decline in yielding power on non-commercial farms. In the minds of the operators as expressed in their actions aggressive management will not pay and so the land declines in agricultural production.[10]

Since reseeding was increased in 1937 over that of 1935 the data were examined to determine where this increase took place, and especially to analyze the significance of the change. First of all, it was noted that when the farms were sorted according to the per cent of reseeding in 1935 and in 1937, there was a decrease of farms where no reseeding was done. Approximately one-tenth of the total tillage land moved from farms with no reseeding practices to farms associated with reseeding.

On the 376 commercial dairy farms 133 operators reseeded the same acreage in 1937 as in 1935, 67 reseeded less, and 176 reseeded more. Of those who reseeded the same or less acreage, 69 reseeded less than 6 per cent of the tillage land in 1937. It might be said that these had made no improvement in seeding practices and were not reseeding enough land.

Thus, it would seem that payments for reseeding have not induced certain operators who are deficient in reseeding practices to improve

[10] See footnote No. 9.

their management in this respect. Where the management is already effective in reseeding there would be little social gain in increasing seedings but, on the other hand, payments should not be denied the operators who are following good practices even if the payment does not result in change. Such operators are doing the thing that the payment should induce others to do.

Of the 176 operators who increased their reseeding in 1937, seventy had seeded no acres in 1935.

Reseeding is an important practice and yet some of the payment is not bringing about results. Instead of abandoning the practice, however, it would be best to find a way to make payment conditioned on sufficient amount of reseeding to bring real improvement in soil fertility.

Effect of Management on Tillage Land Abandonment

Combining the effect of these factors of livestock association and reseeding on the farms of the 12 towns, there were 9,782 acres of tillage or about 19 per cent of the total on farms where no livestock were kept and no new seedings were made in 1937. In addition 8,134 acres of tillage had some livestock (less than .2 animal unit per acre) but no new seedings were made in 1937. (Table 19) Thus it would seem that about one-third of the present tillage is under management that is not favorable to soil building for crops. On a state basis this means that about 150,000 acres now classed as tillage is in process of being diverted to other uses.

These data on livestock-tillage land ratio and reseeding ratio have been stressed in some detail because it has been important to examine and present the trends in soil conservation.

Even with the conservation program, present management means the eventual loss of large acreages of tillage land. There is little in the economic outlook to suggest a demand and price situation in the next 10 years that will be great enough to bring forth the management and ex-

TABLE 12. *Comparison of practices on 805 residence farms in 1935 and 1937.*

Practices		Total practices carried out on					
		805 farms†			67 farms enrolled		
		1935	1937	Change	1935	1937	Change
Lime used,	tons	.5	49.9	+ 49.4	.....	47.5	+ 47.5
New seeding hay land,	acres*	21.3	46.8	+ 25.5	5.8	30.6	+ 24.8
Fert. on new seeding,	tons	.....	.7	+ .7	.....	.3	+ .3
Fert. on hay land,	tons	.1	1.6	+ 1.5	.1	1.6	+ 1.5
Pasture improvement,	acres	.....	4.5	+ 4.5	.....	2.5	+ 2.5
Fert. on pastures,	tons	.....	.....	.....	.....	.....	.....
New seeding in pastures,	acres	.....	1.0	+ 1.0	.....	1.0	+ 1.0
Green manure,	acres	.....	.....	.....	.....	.....	.....
Mulching orchards,	tons	.3	.....	— .3	.....	.....	.....
Forest trees planted,	M.	.....	.....	.....	.....	.....	.....
Woodland improvement,	acres	.....	.....	.....	.....	.....	.....

* Does not include new seeding in pastures.

† Includes all residence farms whether or not enrolled in the program.

pense required to redeem and reestablish these acres of tillage land. The longer the downward trend continues, the more management and expense will be required to bring the land back into production.

The Effect and Significance of the Conservation Program

The continuance of the agricultural conservation program is bound to have a profound effect on the agriculture of the United States. Practices of soil conservation and soil building will unquestionably show results in the next decade and the adaptation of these practices to the local situation in each area may result in considerable shifting in the location of production. Much depends on the effectiveness of the programs in the different regions in increasing crop yields and the necessity of shifting crops in order to conserve the soil.

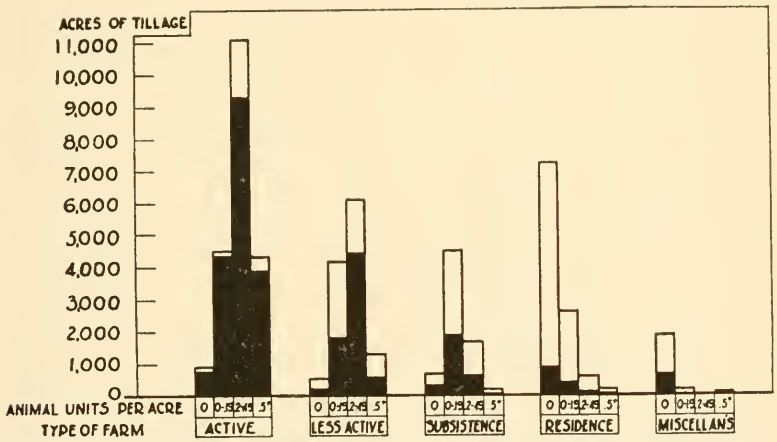

Figure 4. Tillage acres in each type of farm group distributed according to animal units per acre. Shaded portion represents enrollment.

The areas that are able to make considerable progress will be greatly benefited by the program and regions that cannot use the practices or fail to use them intelligently will be handicapped. Many problems must be examined from the viewpoint of the relative influence of programs and in the competitive relationship between regions. The area that marks time is actually going back in relation to the areas that advance. For instance we are now aware in this state, although we did not fully recognize it at the time, that the building of a good road 20 years ago had a tremendous influence on the agriculture of certain areas. Those tributary to the road were brought nearer markets as measured in time and ease of travel. Those not served were relatively worse off than before. The conservation program can have the same selective influence both nationally and within a state.

A part of the difference in influence is related to geographical differences in regions and in the type of farming and amounts and character of tillage land, but a great deal of the difference can arise from

differences in the application of the program. As long as the conservation program is a law of the land affording benefits to all regions, New Hampshire farmers should take every advantage of the opportunities offered. To a large extent the efficiency and the intelligence of their cooperation with the program will decide the fate of many farms in the next quarter century. There may be grounds for honest differences of opinion as to the merits of the law and the details of its administration but all New Hampshire interests that have an understanding of the competitive situation will unanimously support the participation of New Hampshire farmers in the program to the limit of social profitableness as long as the law exists.

The full significance of the long-time results to New Hampshire cannot be predicted or measured entirely from data obtained from farms in this state. The agriculture of New Hampshire is competing with agriculture elsewhere and the farm operators of the state have comparative advantage in interregional competition for a few products only, and even then, only with respect to nearby markets.

What Farms Should be Enrolled for Maximum Social Gains?

How many of the farms which were not enrolled would it be in the social interest to include in future enrollments? This is a difficult question involving broad implications of land use and the welfare of many rural New Hampshire families.

Table 13. *Actual payments in 12 towns under the 1937 Conservation Program.*

Town	Value of all completed practices* (dollars)	Payments made (99% of the amount earned) 1% for expenses (dollars)	Per cent of completed practices over payments	Total possible allotment for all farms (dollars)	Per cent of total possible allotments paid
Barrington	533.71	524.65	101.7	4,026.16	13.0
Colebrook	5,687.66	5,469.69	104.0	9,592.96	57.0
Conway	2,308.75	1,817.24	127.0	5,201.68	34.9
Farmington	547.40	410.62	133.3	3,928.30	10.4
Gilmanton	1,433.22	1,250.04	114.6	5,026.04	24.9
Hancock	881.77	842.77	104.6	3,183.15	26.5
Hopkinton	1,587.41	1,329.30	119.4	6,214.16	21.4
Lisbon	1,043.70	1,090.48	95.7	5,962.30	18.3
Londonderry	2,142.27	1,545.67	138.6	7,576.44	20.4
Plainfield	917.72	742.56	123.6	6,799.60	10.9
Stratham	3,024.36	2,467.56	122.6	4,546.48	54.3
Walpole	4,428.17	2,745.69	161.3	7,677.56	35.8
Total	24,536.14	20,236.27	121.2 (ave.)	69,734.83	29.0

* Includes practices completed on individual farms in excess of allotments. These excess practices were not eligible for payment.

In a broad way it will be advantageous and socially desirable to enroll all farms that represent commercial farming opportunities. This probably would include most of the present active commercial farms and probably 50 to 75 per cent of the less active commercial farms. Other farms which represent permanent part-time or residence locations might well be included. In these latter groups, however, the main emphasis should be on woodlot management, soil-building practices being confined to such small areas of tillage land or pasture as will actually be needed in the future on farms of this type. Under the present plan of computation, the allotments on resident farms would be insignificant. For instance in the group of 805 resident farms, 496 have less than 11 acres of tillage. With a different plan of computing allotments, there would be an opportunity for these non-commercial farms to develop their woodlands and in most cases this is in the direction of the best use of land. It may be in the social interest to include certain farms that will be abandoned in the next decade provided nearly all the allotment went into tree planting and woodlot improvement since this is the logical trend. Summer places with large acreages of tillage land which will eventually go out of cultivation might be enrolled; but only woodlot practices should be encouraged. In this case local assets are being developed which provide productive work for local people now and in the future.

The problem of determining the best forest practices is one largely of predicting what degree of management of timberlands is socially profitable. Certain areas of woodlands may be in such condition that spending money and effort on their improvement would not be profitable. This situation logically may bar individual farms from carrying out woodlot practices. On the other hand, some farm operators who have woodlots especially accessible to good local timber markets can profit-

TABLE 14. *Distribution of 1,869* farms according to the number of animal units per acre of tillage in 1937.*

Animal units per tillage acre	Commercial farms		Non-commercial farms			Total	Per cent
	Active (number)	Less active (number)	Subsistence (number)	Residence (number)	Miscellaneous (number)	(number)	
0	17	16	36	528	59	656	35.1
0 - .19	53	79	159	159	2	452	24.2
.2 - .49	171	168	105	71	.....	515	27.5
.5 and over	97	82	33	30	4	246	13.2
Total	338	345	333	788	65	1,869*	100.0

* Thirty-one farms were excluded from this table. Ten had no tillage and on 21 farms the animal unit-tillage area ratio was not determined.

ably apply more management. It is difficult to outline projects that will be socially sound for all locations and all conditions.

But no doubt many non-commercial farms have woodlands on which some degree of management is desirable. It may be well to consider various woodland practices which can be widely adapted. This might require either a special allowance for definite special practices to fit the needs of forestry on part-time farms.

To sum up this general statement, soil conservation practices should be followed only on farms and fields that have a future use for hay and crops or pasture but woodland improvement practices can be encouraged on all farms where the condition of the stands, soil, and accessibility make these practices desirable and profitable.

However, to interpret this general policy administratively is difficult. Beginning with the active commercial farms, most of them should be carrying on conservation practices on crop and pasture land. A few of these farms may be located in areas where the opportunities are not encouraging, or good individual farms may be located in isolated places where the social interest is not aided by the farm continuing in production. At the present time it may be best to encourage these men to put a larger part of their allotment into woodlot improvement but not to restrict the free choice. Until we have classified our lands as to agricultural opportunities and these have become generally accepted we are not in a position to restrict payments for soil building.

Eighty-four per cent of the active operators enrolled in 1937, and it would seem advisable to have a larger percentage take advantage of the program in future years.

Many of the commercial farms classified in the less active group are good farms in the hands of people who are not able to operate them aggressively. Some of these farms are even better than many in the active group. It would seem logical to examine the list of this type of farms carefully and make a special drive to get enrollment and good

Table 15. *Distribution of 51,702 acres of tillage according to number of animal units per acre of tillage in 1937.*

Animal units per tillage acre	Commercial farms		Non-commercial farms			Total	Per cent
	Active (acres)	Less active (acres)	Subsistence (acres)	Residence (acres)	Miscellaneous (acres)	(acres)	
0	910	455	627	7,166	1,752	10,910	21.1
0 - .19	4,504	4,205	4,625	2,598	90	16,022	31.0
.2 - .49	11,029	6,053	1,326	479	.....	18,887	36.5
.5 and over	4,383	1,289	137	65	9	5,883	11.4
Total	20,826	12,002	6,715	10,308	1,851	51,702	100.0

practices on the better farms that represent production opportunities. The present owner, even if greatly handicapped financially or by age, feels a social responsibility to preserve the fields and pasture and a way should be found to aid these men to follow the more important practices or perhaps they can be encouraged to sell or lease to someone that will maintain them. A few excellent farms are in unsettled estates and something should be done to preserve them. Fifty-three per cent of the less active farms were enrolled in 1937 and perhaps it would be well to enroll 70 per cent of this class in future programs. A considerable number of these, however, should not attempt to build up more than the best tillage land near the buildings which could be used in keeping the family cow.

A few of the present subsistence and residence farms may have opportunities in commercial agriculture if the fields have not been ignored too long, and these few farms should be brought into the program if possible.

Since many of the people on subsistence or residence farms have other work and know very little about forestry, it will be difficult to interest them in forestry practices. About one-third of the subsistence and one-twelfth of the residence farmers enrolled in the program in 1937. It will be difficult to get a larger number to enroll and carry out effective practices. If general educational methods will bring in these groups at little additional administrative cost, some advantage will accrue to the communities; but probably it will not be practical to make an expensive campaign to enroll them. Too many are not in a position to carry out or profit from practices.

The Effect of Participation on Individual Farms

The effect of having part of the farms in the program and the tillage land benefiting from government aid in the soil-building process, and other farms not following any soil-conserving practices will be to lay the foundation for increasing higher yields on the one group and decreasing yields on the other. These are trends that have been in process for many decades. The conservation program will accelerate them, resulting in higher yields on good farms and the discouragement of production on others. It probably is not socially desirable to carry on soil-building practices on land which is definitely going out of agriculture and reverting to timber. On the other hand, there is a social responsibility to make sure that good farms are in the program and are not lost.

With some farms gaining in productive capacity, we need to take stock of the effect of this greater productive capacity on the general situation. Greater yields resulting in lower costs on the conservation farms will increase the difficulties of the poor farms. The disadvantaged location, the present low status of fertility, the present low demand for the products of some farms, together with the inability of the occupants to carry the program, indicate the futility of extending the soil-building process to all present fields.

The plight of the people who find themselves on such land should not, of course, be dismissed lightly. We may in the short period, need to

do many things that are not economically sound in the long period. People are the important resources and any program should protect and aid the minority group which is unfortunate in its present adjustment to land.

As a matter of fact, these families are not now deriving much from the land and if the program is turned in the direction of sound forestry improvement practices, the operator can earn his allotment largely from his own labor and he is creating assets that will mean more production and more employment later.

Effect of Program on Dairy Production

In general, the New England dairyman has a location advantage in the production of fluid milk for New England markets, being protected by high transportation costs from the competing milk production centers of Michigan, Wisconsin, and Minnesota. This advantage, however, is tempered and checked by the supply of condensed milk and the possibilities of new processes.

In the production of cream the New England farmer has less advantage and the price of milk in terms of cream values would discourage production on many farms, except as an enterprise supplementary to the regular dairy business. The location advantage in butter and cheese production is still less and only a few farms would continue production in competition with western farmers.

Whenever New England production of milk greatly exceeds the requirement for fluid milk, there is a tendency for the market price to be pulled down toward the level of cream prices and finally toward the

Table 16. *Distribution of 1,869* farms according to per cent of tillage land reseeded in 1937*

Per cent of new seeding	Commercial farms		Non-commercial farms			Total	Per cent
	Active (number)	Less active (number)	Subsistence (number)	Residence (number)	Miscellaneous (number)	(number)	
0	90	166	217	755	61	1,289	69.0
0 - 5	49	64	39	12	1	165	8.8
5.1 - 10	108	64	38	7	1	218	11.7
10.1 - 15	46	27	15	2	.....	90	4.8
15.1 - 20	28	15	12	5	.....	60	3.2
20.1 and over	17	9	12	7	2	47	2.5
Total	338	345	333	788	65	1,869*	100.0

* Thirty-one farms were excluded from this table. Ten had no tillage and on 21 farms the animal unit-tillage area ratio was not determined.

level of butter and cheese. So, in general, supplies of milk greatly beyond the requirement of fluid milk deepen the effect of competition from other areas and result in unfavorable composite milk prices.

There are people in New England who contend that the dairyman should produce all the fluid milk and all the cream used in New England. To these advocates this production is a duty, a "stint," for the New England dairyman. They are thinking in terms of institutions. A certain housewife with a certain type of institutional conscience insists on devoting six hours every Monday to the washing process. If there are not sufficient dirty clothes to keep her busy, she will put unsoiled clothes from the beds and closets through the wash. A specialized conscience demands this special stint of six hours of hard work.

In the competitive milk production situation, the New England dairyman needs to produce only such amounts as it is to his and the industry's advantage to produce. Additional amounts can be purchased from competing centers. If the production of all the cream results in lower income to dairymen there is no advantage gained by either the dairyman or the consumer in the long run.

The industry could not, of course, produce all the cream required without occasionally and seasonally producing a surplus which would have to be diverted into butter. The depressing effect on fluid prices plus the larger proportion of non-fluid milk would result in a low composite price which would be distressing to most dairymen.

Thus in New England it would probably not be to the advantage of the industry to expand present production.

Without question, the conservation program stimulating greater use of lime, more frequent reseeding of hay land, and more fertilizer on pasture will eventually increase yields of roughage and the carrying

TABLE 17. *Distribution of 51,702 acres of tillage according to per cent of tillage land reseeded in 1937.*

Per cent of new seeding	Commercial farms		Non-commercial farms			Total	Per cent
	Active (acres)	Less active (acres)	Subsistence (acres)	Residence (acres)	Miscellaneous (acres)	(acres)	
0	3,659	4,719	4,011	9,848	1,538	23,775	46.0
0 - 5	3,940	3,185	1,275	184	248	8,832	17.0
5.1 - 10	7,017	2,413	839	127	30	10,426	20.2
10.1 - 15	2,916	1,098	237	42	.....	4,293	8.3
15.1 - 20	2,228	384	182	45	.....	2,839	5.5
20.1 and over	1,066	203	171	62	35	1,537	3.0
Total	20,826	12,002	6,715	10,308	1,851	51,702	100.0

capacity of the farms. For instance, Mr. Noyes of Littleton began a system some 40 years ago of using some lime and reseeding frequently with clover and alfalfa and has gradually built up yields and livestock numbers. In 1936 this farm carried 16 animal units on 14½ acres of tillage land. Mr. Hough of Lebanon has followed a conservation system of lime and frequent reseeding with clover and alfalfa for over 40 years and in spite of increasing his herd has a surplus of hay. For additional evidence of the possible favorable effect of a conservation program on total yields, reference is made to the results obtained in the roughage production study in 1932.[11] Mr. Abell found that the yields of hay were higher on the farms with larger acreages in corn silage and it is thought that this resulted largely from the shorter rotations and more frequent reseeding.

In this study covering over 200 dairy farms, for every 100 acres of tillage land devoted to roughage in Group 1, there were 7.5 acres of silage and the yields of hay on the other 92.5 acres totaled 107.3 tons or 1.16 tons per acre. In Group 2, there were 12 acres of corn silage and the yields of hay on the other 88 acres totaled 121.4 tons or 1.38 tons per acre. In Group 3, there were 17 acres of silage and the yields of hay on the other 83 acres totaled 131.4 tons or 1.58 tons per acre. In Group 4 there were 25 acres of silage and the yields of hay on the other 75 acres totaled 135 tons or 1.8 tons per acre.

While the land may have been more easily tilled and also better to begin with, in all these instances the results are probably accumulative and the greater yields have developed slowly. The larger yields of

[11] Abell, M. F.; Roughage Production in New Hampshire; New Hampshire Agricultural Experiment Station, Bulletin 273, 1933; page 5.

TABLE 18. *Distribution of 1,869* farms according to number of animal units per acre of tillage land and per cent of tillage land reseeded.*

Animal units	Per cent of seeding in 1937						Total (farms)
	0 (farms)	0 - 5 (farms)	5.1 - 10 (farms)	10.1 - 15 (farms)	15.1 - 20 (farms)	20.1 and over (farms)	
0	627	7	6	3	5	8	656
0 - .19	311	72	43	14	6	6	452
.2 - .49	214	78	130	51	28	14	515
.5 and over	137	8	39	22	21	19	246
Total	1,289	165	218	90	60	47	1,869*
Per cent	69.0	8.8	11.7	4.8	3.2	2.5	100.0

* Thirty-one farms were excluded from this table. Ten had no tillage and on 21 farms the animal unit-tillage area ratio was not determined.

roughage have enabled the farmer to keep more stock. In turn more stock has meant more manure. Since the grain is purchased and since the land is plowed and reseeded regularly there has developed greater yielding capacity.

Although corn is considered a soil-depleting crop in the national economy, it does not follow that the growing of moderate acreages of corn silage in New Hampshire results in soil depletion. The effect of corn growing on soil depletion or soil building is quite different in a region where only one-fifth the area is in grass and no grain is purchased as compared to regions such as New Hampshire where over 90 per cent of the tillage land is in grass and large quantities of grain are purchased. A moderate acreage of corn silage as handled in this state may be a factor in soil building rather than depletion, provided it is grown in a regular system in which several years of grass follow.

Effect of Program on Cow Population

Fundamentally, cow population in New Hampshire will depend more upon price relationships than upon conservation programs. Long continued low milk prices will discourage the employment of new capital and new personnel in the dairy enterprise and on the other hand high prices will eventually stimulate dairy production. But the conservation program is an important factor in the extent and location of the dairy industry. Production at any one time will have to be geared to the capacity of the agricultural plant and this capacity is dependent upon the management farms are given over a period of years. If the capacity of the plant declines it cannot be brought back quickly, and the further it declines the more difficult and more expensive is the process of bringing it back. On the other hand, if the plant is over-expanded in relation to demand, the price situation is likely to be unfavorable for a period of years.

TABLE 19. *Distribution of 51,702 acres of tillage land according to number of animal units per acre of tillage land and per cent of tillage land reseeded.*

Animal units	Per cent of seeding in 1937						Total (acres)
	0 (acres)	0 - 5 (acres)	5.1 - 10 (acres)	10.1 - 15 (acres)	15.1 - 20 (acres)	20.1 and over (acres)	
0	9,782	421	152	83	261	211	10,910
0 - .19	8,134	4,449	2,239	491	526	183	16,022
.2 - .49	4,236	3,735	6,312	2,689	1,276	639	18,887
.5 and over	1,623	227	1,723	1,030	776	504	5,883
Total	23,775	8,832	10,426	4,293	2,839	1,537	51,702
Per cent	46.0	17.0	20.2	8.3	5.5	3.0	100.0

It is important to both the dairy industry and the consuming public that the agricultural plant capacity be maintained at about present levels. Therefore it is essential that effects of the soil-building program on dairy production be carefully weighed and studied. In the light of present tendencies to accumulate large national surpluses of farm products, a conservation program which tends to stimulate greater production should be examined carefully. A check on the problem at this time must, of course, be arrived at by a process of general estimates but even these may serve to give some idea of the situation.

In this estimate of the effect of the program we assume present trends in the management of land, fully realizing that changes in prices or shifts in other opportunities will tend to modify present management practices.

Taking the 12 towns as a sample: The 227 active commercial dairy farms had 14,714 acres of tillage land and 4,162 cows—this is 3.5 acres per cow—and the 232 less active had 9,287 acres of tillage and 2,051 cows; that is, 4.5 acres of tillage per cow. These two groups comprised 459 farms and had 6,213 cows, or over 85 per cent of the total on all farms in the survey in New Hampshire.

It may be estimated roughly that 90 per cent of the 227 active commercial dairy farms may follow soil conservation and soil-building practices under the conservation program and in the next 20 years may increase roughage by .4 ton per acre on 80 per cent of the tillage land. This would amount to 4,194 tons increase in hay on this acreage.

The remaining 20 per cent of tillage because of slope, rocks and rock outcrop, and wet or poor soil would more logically be diverted to permanent pasture. It may be estimated that these 2,943 acres are now producing about 2,000 tons of hay.

It is thought that 10 per cent of the farms through changes in ownership and unfavorable location or soil would not follow the program very efficiently and present or declining yields would continue.

Actually some of these farms will cease to be operated as dairy farms but a few other farms now inactive will be brought into active dairying by change of ownership. The net gain on active commercial farms would therefore be about 2,100 tons of roughage and 2,943 acres of pasture.

Likewise, it may be estimated that 60 per cent of the 232 less active commercial dairy farms will follow soil conservation practices and that these might increase yields by .4 ton per acre on 80 per cent of the tillage land. This would result in an increase of 1,783 tons of hay. The 1,857 acres of rough, wet, and rocky land that would revert to permanent pasture is probably now yielding about 1,000 tons of hay. The net gain on 60 per cent of the farms would be 783 tons of hay and 1,857 acres of pasture.

However, on both the active and less active farms the permanent pastures have been declining for many years and probably many acres will be lost in the next 20 years. The amount of acreage that it is economical and practical to redeem and keep up is very limited. It is estimated that most farms will need to pasture some of the regular tillage fields in the rotation. This would decrease the harvest of hay to some extent. The estimated increase of 2,883 tons of hay on the 90

per cent of the active and 60 per cent of the less active farms would be reduced to about 2,000 tons to allow for some pasturing. Thus an increase in roughage would be available for about 700 cows.

On the other hand many of the less active farms are declining in yields and due to location, type of soil, roughness and size of fields, few operators will follow conservation programs in soil building. They were not enrolled in the 1937 program and are not in a position to use the conservation practices effectively. Most of these not enrolling will probably pass out of the picture as commercial dairy farms in the next 20 years and their tillage land will gradually revert to forest. This change would mean the loss of about 2,786 acres of tillage which can now support about 600 cows.

In addition, the decline in pastures and hay acreages and hay yields on non-commercial farms and the abandonment of other farms will account for the loss of at least 100 cows.

Many dairy farmers are now harvesting hay on nearby semi-abandoned farms and it is recognized by the operators that the hay on such places will gradually diminish under present management. The extent of this practice is not known quantitatively and it varies greatly from year to year depending upon supplies of hay. In years of hay abundance and low prices, many of the fields are not harvested. But many cows are now carried on roughage which has been harvested from semi-abandoned fields that will be classed as brush land in a few years.

The census of 1935 indicates 78,086 cows in New Hampshire; and if the data of these 12 towns as a sample are applied to the state, the results would be approximately this: An increase of 7,000 cows on the better farms following conservation practices would be offset by a decrease of about the same number on farms not enrolling in the program.

Thus the conservation program in the next two decades would result in the building of yields and cow numbers on the best farms in good locations and the decline of yields and cow numbers on farms where opportunities are meager. Thus in this state there would result a shift in location of production rather than a change in total production. Fewer farmers would be producing the state's milk supply on fewer farms.

Granted that increased production on good farms would be offset by abandonment of other farms, the New Hampshire dairyman is confronted with the situation in New England as a whole. Faced by lack of data, one can only state in general terms that the dairy industry will tend to shift to areas where conservation practices result in lower relative costs. This may result in shifts in location within the state as well as from one state to another, probably to places where larger areas of tillage and pasture can be combined in individual farms.

The conservation practices, in addition to increasing yields, should have a marked effect on the quality of hay produced. Experience indicates that within limitations good quality hay can be substituted for grain in the feeding of dairy animals. Thus the increase in total hay tonnage on many farms might well result in changes in grain feeding rather than in total milk production.

Effect on Fruit and Poultry Farms

In the case of other agricultural enterprises such as poultry and fruit, the conservation program plays a minor role and will not influence production in a significant degree. Price relations will be the controlling factor in guiding either expansion or decline.

Many small farmers with meager incomes are not able to use the program as it now exists and many of these operators will continue to live on their present places, working off the farm and also securing some income from forestry. Through the conservation program or some other program we need to enable this group to build up their timber resources.

The Program as Related to Marginal Farms

The question is often raised as to the participation in soil-conservation practices by operators on submarginal farm land and particularly the amounts of public and private money going to improve the soil on farms that will probably be abandoned shortly. This question cannot be answered very accurately at this time because of lack of definite data. It is difficult to make predictions as to extent of future abandonment, and it is doubly difficult definitely to delineate such areas. Very good farms are often interspersed within areas of generally poor farming, and on account of part-time farming opportunities even the poor farms may continue to be occupied. In such cases there may be little social loss even if some conservation money is employed in soil-building practices.

In three counties of the state, in connection with a type of farming project, the land area had been differentiated into classes based on priorities of opportunities in commercial dairy farming. Opportunities in fruit growing, poultry farming, and part-time farming were ignored. Location as to markets, soil, topography, and ease of operation were considered.

Since the agricultural conservation practices related to soil improvement directly concern dairy farming, the extent and location of participation in soil-building practices were compared to the areas classified as indicated above.

Each farm participating in the program was located on the map, and the total payment and extent of each conservation practice was noted.

The first three areas representing a total of 420 square miles, or 21 per cent of the total land area, and grouped in this report as Class A area illustrate conditions of location, soil, topography, ease of cultivation, productivity of pasture, and layout favorable to commercial dairying. This area accounted for $29,078 or 73 per cent of the total conservation payments. Area B[12] comprising 12 per cent of the total land, represents areas of land in which dairying is more or less handicapped and the future trend is somewhat uncertain. It is a marginal area and the trend will probably be very sensitive to price relations. The operators in this area received $6,142 or 15.3 per cent of the total soil improvement payments.

[12] Area A includes Areas I, II and III in type-of-farming study; B is Area IV. (Study has not been published.)

Area C[13] represents areas where commercial dairying is definitely handicapped and the industry is on the decline. This area with 27 per cent of the land area accounted for $4,900 or 12 per cent of the payments for soil improvement.

Thus approximately $5,000 in payments for soil improvement practices went into areas where commercial dairying in general has severe handicaps and is slowly declining. It should be noted, however, that a few farms in these areas will survive for many years.

Then, too, there are poor farms interspersed among good farms in good areas, and these also may be receiving money for soil-building practices. In these instances, there is a tendency for abandoned tillage fields and pasture to be incorporated with adjoining good farms and used as pasture. In such instances, the present uses of conservation practices will make the fields more valuable and there is no social loss.

From a long-time point of view probably a large part of the $5,000 going into Area C represents a social loss in that the fields may be abandoned in a few years. In some instances the conservation payments may be an influence delaying abandonment and hindering normal trends. Until land has been definitely classified and this classification definitely accepted by local people, we may need to give each individual a chance to develop the available opportunities as he sees them and in spite of possible social losses. However, educational processes in the nature of land use problems and the raising of questions regarding the best adjustment of people to resources can tend to guide the use of the conservation money into productive channels.

It is well to note here that social loss of conservation money is not confined to marginal or submarginal areas. Often the very best farms are taken over by summer people or residents who are not interested in the fields.

It will be in the long-time social interest to abandon the farms which represent no opportunities, but we must investigate the situation carefully and weigh the advice and experience of local people before definite decisions are made.

Recognizing the short-time needs of occupants of submarginal farms it may be well to have a short-time policy on tillage land improvement and a long-time policy for timber management. Thus soil practices leading to immediate income without regard to permanent soil improvement might be justified.

In the meantime it would seem wise for the Agricultural Adjustment Administration to construct a program based on the best information now available so that one type of program would ease agricultural land without production opportunities out of agricultural use and another type of program would tend to build up the productive capacity of the remaining land. In areas where agriculture is greatly handicapped, no compulsion would be undertaken and no restrictions made as to the individual's choice of practices; but the administrators could through educational processes question the individual's program, and finally place the individual who follows an uneconomic program on the defensive. There will be instances where individual farms in a declining agricul-

[13] Areas V and VI in type-of-farming study (unpublished).

tural area should be kept up. This is particularly true where an isolated farm serves recreational and summer resident interests. There are certain opportunities for an operator in a generally poor area to fit into a situation where income can be obtained.

Such a program would give considerable elasticity to the adjustment of the conservation program to the best future use of land, enabling an individual to take advantage of every agricultural resource. At the same time, there would be a minimum of social waste in building up soils that soon will be abandoned.

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